

How Do Environmental Issues Contribute to Regional Instability?

and

Which Regions Will Pose the Greatest Threat to U.S. Security as a Result of Environmental Degredation?



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Which Regions Will Pose the Greatest Threat to U.S. Security as a Result of Environmental Degredation?

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Abstract

Environmental Security is a hot topic throughout the world. It has been researched and discussed in papers and articles. However, it has yet to be applied to regional instability beyond discussion within the National Security Strategy. The purpose of this paper is to define *Environmental Security* and apply the definition to two regions of the world and try to identify the environmental factors that pose the greatest threats to U.S. security.

The primary objective of this research is to determine and define how environmental issues contribute to regional political, economic or physical instability and then apply this definition to the regions of the world. Environmental issues are not contained by national boundaries, hence, we will focus on the two contrasting pictures of regional instability as influenced by environmental issues. Competition for natural resources and environmental degradation pose a risk to national security and regional stability in the Middle east. However, in Southeastern Asia environmental crises have instigated regional cooperation and enhanced regional stability. As this paper will demonstrate, the effect of environmental issues on regional security is dependent on the disposition of the players.

Section I: Environmental Security Definition

The national security policy of the United States is developed from the perceived and actual sources of conflict which have a direct influence on our people, our territory, and our way of life. During the Cold War, our security policy and resources were concentrated on neutralizing the threats that the Soviet empire could impose on our nation and other democratic nations of the world. Today there is no longer one single entity which poses an overwhelming threat to a democratic way of life. All threats that were previously considered insignificant to our national security and well-being have now come to the forefront and are the major players in the development of future policy. One of the most influential global threats influencing our post-Cold War era strategy policy is the environment. The environment, according to the joint DoD, EPA and DOE Memorandum of Understanding, "...is important to U.S. foreign policy because of the Link between environmental risks or threats, both regional and global, and political and economic instabilities that can affect U.S. economic and security interests."

Environmental degradation that has a firm grip on the global community, it is imperative that the United States is selective on how, when, and where we intervene on global environmental issues.

It is necessary to define the concept of environmental security prior to implementing foreign security policies to respond to the threat from environmental issues. Any definition is open to criticism and debate in the infancy of concept development. Numerous government agencies are developing a working definition for environmental security, but we shall define it as follows: any situation arising from environmental degradation which threatens to have a negative impact on the economic or political well-

being of the United States. Our definition includes impacts, present and potential, on the military. This definition can have both domestic and international implications. This paper intends to focus on those international situations occurring outside the boundaries of the United States. Our definition contains many ill-defined notions which need to be addressed. Most importantly, what can be classified as a threat to the well-being of the United States?

Historically a national security threat has been defined as anything that could disrupt the progress and advancement of the United States. This includes a broad spectrum of events, from military readiness to foreign investment (which fosters the growth of our economy). During the Cold War communism posed the threat which could have prevented the advancement of our society. Global and regional problems with the environment do not threaten the sovereignty of the United States, but at the same time, poses the most significant threat to prevent the growth of our sphere of influence. Future prosperity of the United States is dependent on the stability of the world, specifically in third-world nations where significant financial investments and political gains can still be realized. The environment is the major threat which could threaten both global and regionally stability. Therefore as our national security strategy is outlined for the next millennium, the environment is going to be the most significant threat and must be the major influence of our policy.

Prior to the end of the Cold War, the environment was recognized as a major threat to the U.S. The idea of environmental security was first presented in 1987 at the United Nations General Assembly and since its introduction, it has grown into the major shaper of our United Nations and U.S. foreign and security policies. Despite its enormous

sphere of influence, environmental security remains an enigma to those who attempt to define it. Due to the lack of a clear-cut definition, the United States current position on how it intends to handle global environmental issues itself remains undefined. The lack of a clear cut U.S. definition of environmental security impedes a unified strategy on global environmental issues. Hence we are not effectively responding to the major threat to U.S. international security.

The environment has been designated as the one of the highest threats to U.S. security as the nations moves forward into the twenty-first century. The question remains how and when the United States should get involved in an environmental issue in a sovereign nation. In order to preserve the sovereignty of any one nation, the United States should not take an aggressive stance when an environmental concern arises in a foreign entity. Yet an environmental issue cannot be confined within a sovereign nation's boundaries. The United States can not be passive with its response if the environmental problem is severe enough that the potential for a conflict to develop in that nation. There is a fine line between what could develop into a conflict and what could not. Thus, the United States should be extremely careful and selective where and when it chooses to become involved. When the United States does pursue an international environmental issue, the issue must be clearly defined as a threat to our security, otherwise it will be difficult to validate our reasoning for involvement to the world and the American people. If the United States appears to be too aggressive in response to a perceived environmental security threat, then the intentions of securing our well-being could be foiled by creating ill will with that nation.

Another method for U.S. involvement is the solicitation of help from the foreign nation. Solicitation for assistance from a foreign nation is the best method to become involved since we are not the ones intruding on a nation. Many problems may arise when a country solicits the help of the United States. First, the United States may not have a better a solution than what the country is currently employing. When countries ask for help of the United States there is a preceding expectation of their citizens that the United States can and will improve that situation. Foreign nations also expect immediate results which requires funding. When funding is not available results may be slow in materializing. This can lead to resentment towards the United States when the 'superior' nation is unable to deliver an immediate solution to the developing nation. Response to a nation's solicitation can also turn negative if the country soliciting our help is not considered to be a significant security threat. Due to the humanitarian image of our country, it would be inappropriate to deny a request for assistance. Thus, resources which may have been better allocated will be diverted to a lesser cause and may hurt our functional capabilities in a more pressing area.

There are three reasons as to why the U.S. should limit assistance to training and advising opportunities and not get involved in the day to day operations. First, the intention of our presence is not to establish a permanent force residing within the country. If the United States takes control of the day to day operations, then it will always require our presence to watch and evaluate the progress of the mission. Second, by training those individuals responsible in the nation, it can not help but lead to positive implications. Besides teaching the knowledge required by this task, it will instill a sense of confidence within the leaders of the country that they have the ability and capabilities to overcome

internal problems which may arise. A developing nation can then solve their own environmental issues. It will also teach them valuable leadership skills on how to oversee an extensive operation. Finally, a team of trainers and advisors will remain relatively small and therefore will not detract from the overall mission readiness of our forces.

Having deployed a team of military specialists to advise the operation and educate the country on solutions to their environmental problems, the United States is now in a position to secure our national interests in that country and therefore protect the future well-being of our citizens. The United States has the potential to make significant progress in three major areas: the military, technology, and economic investment.

Perhaps the most critical area in which the United States can realize immediate results is in military relations. By deploying the military in a purely advisory role, the intimidation factor which usually precedes our military is eliminated. Partnering will make future joint efforts and cooperatives possible. Through the enhancement of positive military relations, the United States secures a presence in this particular region of the globe. Should a future regional conflict arise, the United States, through the positive relations developed from previous encounters, will be able to establish a base of operation from which the goal of achieving peace in the region will be more readily attainable.

The United States can offer assistance in the emerging environmental technologies field. Through our assistance, we will be able to test newly developed technology, as well as employ current technologies for which we have the resources to implement. These current technologies may be available to the country in question, but they may not possess the resources, equipment or money, to make it useful on a large enough scale to

resurrect their problem. The testing of our new technology will allow us to gather valuable data which may in turn help solve one of our environmental enigmas plaguing our country.

The United States can also be on the receiving end of newer technologies. The United States, despite the appearance of having unlimited resources, is limited and cannot devote the money and resources it would like to numerous causes. It is possible to initiate an information exchange with positive implications for both nations. We can learn new environmental techniques from any nation- we do not own all of the solutions. In conjunction with ensuring our international and regional security, the experience gained from employing our innovative technology and the technical knowledge we may have received can enhance our security back home.

While the United States government does not stand to profit from this endeavor monetarily, the people of the United States do. Our involvement will foster regional stability and a direct derivative of the ensured stability is investment by American companies and entrepreneurs. Foreign investment, especially in third-world nations, is what will influence our economy the most in the 21st century. Without stability, investors are going to be hesitant to invest due to the heightened risk of the investment. The majority of investors are looking for security and this can only be provided with a stable government.

Our definition of environmental security is defined as any situation arising from environmental degradation which threatens to have a negative impact on the economics or well being of the United States. We have listed some ways that this can be applied around the world. But what are the goals of the national environmental security strategy?

The goals must be established to determine when to apply the environmental security strategy.

Section II: Environmental Security Southeast Asia Region

Thus far in this analysis the effects of environmental issues on regional security have been assumed to be negative. This may be due to the analysis of environmental issues following the traditional security analysis of threat identification. As this paper has demonstrated, along with many other regional analyses, the environment does hold significance in the realm of national security. (see *Environmental Change and Security Project Report*, Washington, DC: Woodrow Wilson International Center for Scholars) Since 1991, all National Security Strategy documents have included environmental issues. (Butts, Kent, "National Security, the Environment and DOD," *ECSPR* 2, 1996) However, the remainder of this paper will demonstrate the positive effects environmental issues have on regional stability, as realized in Southeast Asia and as practiced by the United States DOD. These positive effects result from the conduct of environmental diplomacy. This section of the paper will attempt to define this term and defend it's continued pursuit through a description of the resultant benefits.

While issues in Southwest Asia have demonstrated the potential for environmental issues to lead to potential instability, environmental issues in Southeast Asia have demonstrated that nations can cooperate and develop solutions. In fact, it is also probable that these same issues can lead to better regional relations and increased stability. An exemplary case is that of the haze episode that originated from uncontrolled forest fires in Indonesia in 1997, and the manner in which the Association of Southeast Asian Nations (ASEAN) responded. In 1967, the nations of Indonesia, Malaysia, Philippines, Singapore and Thailand signed the Bangkok Declaration establishing

ASEAN. Later, the neighboring nations of Brunei, Vietnam, Laos, and Myanmar (Burma) joined this organization dedicated to “promote economic, social and cultural development of the region through cooperative programmes” In 1977, the ASEAN Sub-regional Environmental Programme (ASEP) was created to outline the extent of regional cooperation, areas of priority and projects to be undertaken in the name of environmental protection. (see the highly informative ASEAN website: www.asean.or.id)

This vision that was established with this organization has borne fruit as demonstrated by the most recent meeting of the ASEAN Senior Officials on the Environment (ASOEN) in September 1998. This gathering reviewed the work of ASEAN groups on such wide-ranging issues as nature conservation, marine environment, transboundary pollution, environmental economics, multilateral agreements, and environmental information, public awareness and education. Various potential international environmental agreements were also discussed as ASEAN again demonstrated their dedication to a regional united front regarding environmental issues. Among the conventions discussed were the Montreal protocol on Substances that Deplete the Ozone Layer, the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and the Ramsar Convention on Wetlands of International Importance. (Ibid) The willingness of these nations to stand together on such wide ranging issues is impressive, but dwarfed by the significance of their reaction to the regional haze crisis that began in 1997. Health alerts blanketed the region and the international airports of Singapore and Kuala Lumpur, Malaysia were routinely closed due to visibility reduction. Despite this potential source of regional discord, the nations of ASEAN shared resources

and established a Regional Haze Action Plan. The effectiveness of this plan has yet to be demonstrated, but the regional cooperation has continued with the establishment of Sub-regional Fire-fighting Arrangement Working Groups and a trial of aerial surveillance in Sumatra. (Ibid) This continued solidarity in the face of environmental crisis demonstrates that in southeast Asia, environmental issues have served as opportunities for increased regional cooperation.

Southeast Asia also provides an example of the concept of environmental diplomacy in action. The term environmental diplomacy has been in use at least since 1996 when Secretary of State Warren Christopher directed the Bureau of Oceans, Environment and Science to “develop an environmental diplomacy resource plan that identifies our diplomatic personnel and financial needs.” (Secretary of State Warren Christopher, Memorandum to All Under and Assistant Secretaries, “Subject: Integrating Environmental Issues into the Department’s Core Foreign Policy Goals,” 14 Feb 1996) In May 1997, Jonathan Margolis, Senior Advisor for Regional Policy Initiative of the Department of State, stated that environmental issues “increasingly are and should be an integral part of the conduct of foreign policy” and described this process as “Environmental Diplomacy.” (Margolis, J. “Civilian-Defense Partnerships on Environmental Issues: Past Lessons and Successes, Potential Pitfalls and Opportunities” *ECSPR* 4, 1998) Lacking further clarification of this term, this paper will propose a definition for environmental diplomacy as the practice of conducting international relations for the prevention of environmental deterioration. There are two forms of environmental diplomacy, reactive and proactive. Prior to defining these forms it is insightful to examine what environmental diplomacy is not.

Environmental diplomacy, as defined in this paper, does not include resolution of conflicts regarding disputed natural resources. While certainly a source of conflict, these issues rarely require the expertise of scientists or innovative resource protection.

Typically, traditional diplomacy is required for conflict resolution, as has been the case since the first time two nations argued over the most basic of natural resources, such as a tract of land. These issues rarely involve environmental protection and in fact, usually concern a nation's right to exploit a natural resource. As defined here, environmental diplomacy must include protection of the environment and will typically require technical experts.

The need, based on self-preservation, for one nation to persuade other nations to act together and achieve progress in protecting the environment is the impetus for environmental diplomacy. Such a need is readily apparent to the industrialized nations of the world, as demonstrated by the proliferation of international environmental agreements. As stated earlier, there are two forms of environmental diplomacy. The first is called "reactive." Reactive environmental diplomacy is the process of two or more nations conducting international relations to resolve a specific environmental issue. Examples of this process include the US-Canada dialogue on acid rain, the Montreal Protocol on CFC's, and the Kyoto conference on global warming. In September 1996, the defense ministers of Russia and Norway joined US Secretary of Defense William Perry in signing the Declaration on Arctic Military Environmental Cooperation (AMEC). This agreement and many others like it are landmarks in world diplomacy for several reasons. First is the subject of the agreements: environmental concerns. In the last 10 years the fact that individual nations are powerless against certain environmental threats

has been accepted internationally. Second is the unprecedented gathering of nations that has been occurring outside the General Assembly of the United Nations and the equally unprecedented tangible results of these gatherings. The third reason is the new rules of engagement. When dealing with many global environmental issues, traditional economic and military powers are not necessarily the power brokers. With a majority of the world's forests and biodiversity within their borders, as well as the greatest threats to the environment, uncontrolled population and industrial growth, developing nations hold new international importance. It is this fact that makes the second form of environmental diplomacy so intriguing.

When two or more nations create a relationship based on the exchange of environmental ideas, culture and technology, with the purpose of bettering the environment of one or all of the countries involved, this process is called "proactive" environmental diplomacy. The ASEAN Senior Officials on the Environment (ASEON) is one example of this. The United States provides multiple examples of proactive environmental diplomacy, primarily through the Department of Defense. The joint State Department/DOD Security Assistance Program has resulted in "nearly 20 nations (receiving) military assistance for the diverse environmental activities of fisheries management, game park preservation, wildlife management, anti-poaching programs, water resource management and conservation activities." (Butts, K., 1996) In addition, in October 1998, DOD conducted an environmental training short course for senior members of the Russian Air Force at the US Air Force Academy. In these examples of proactive environmental diplomacy, there is typically no immediate tangible benefit to the environment, such as promises to reduce emissions of specified pollutants in a set

period of time. However, the ultimate benefit may be far greater than that realized by reactive environmental diplomacy.

Whether proactive or reactive, for a nation such as the United States, engaging in environmental diplomacy results in environmental gains, security gains and economic gains. The foremost benefit for the United States are the environmental gains. In the late 1960's and early 1970's the United States began a revolution, acknowledging the relationship between humans' effect on the environment and the environments' effect on humankind. Environmental legislation flowed like water. By the 1990's, government protection was in place for the nation's lakes, streams, rivers, groundwater, air, forests and habitat and endangered species. Around this time it became apparent that strict environmental protection within US borders would not protect the population from possible environmental catastrophes such as climate change due to global warming and the hazards of a depleted ozone layer. Consequently, the US requires the assistance from other nations to secure the future well being of its citizens. Environmental diplomacy is the primary method for accomplishing this. As a result of the Montreal protocol, industrialized nations have pledged to reduce the production and release of ozone depleting compounds and the US has achieved protection from the increased number of skin cancers and material damage that most scientists agreed would have occurred. In addition, exposing other nations to the American methods of environmental protection can lead to those nations becoming more environmentally friendly. That is, they would enact environmental protection directives to the benefit of their environment, be more likely to participate in international environmental agreements, and consequently benefit the global environment.

The second benefit of proactive environmental diplomacy as practiced by the United States are the gains in regional security. As stated by Kent Butts, the US National Security Strategy "recognizes that environmental issues are useful for reducing tensions among regional states and promoting cooperation and communication, often among formerly antagonistic countries." (Butts, K., 1996) Possibly the greatest potential for minimizing tensions is the opportunity for military to military contacts that environmental issues afford. The statement by the Deputy Undersecretary of Defense for Environmental Security, Sherri Goodman, that "we have evolved from perceiving environmental considerations as a strain on military activities to viewing them as opportunities to serve as good stewards" underlies the potential for DOD to engender a similar evolution in the militaries of the world. (Goodman, S., *ECSPR 4*, 1998) The resultant military to military contact also promotes good will and understanding that may lay the groundwork for future security agreements and cooperative exercises. In fact, the previously mentioned short course for Russian Air Force officials at the US Air Force Academy will likely be repeated in the future and possibly become a regular event. (Personal knowledge of the author)

The third and equally significant benefit of proactive environmental diplomacy are the economic gains that will result from its exercise. Economic benefits will come in two aspects, new markets for the export of environmental expertise and technology, and a level playing ground for US manufacturers. The benefit to US manufacturers should be readily apparent. While no environmental legislation has ever led to an economic downturn there is certainly a financial cost to the manufacturing industries associated with compliance with environmental regulations. This overhead cost is not shared by

manufacturers located in countries with little environmental protection. A recent example of this principle has been demonstrated by the proliferation of manufacturing plants in northern Mexico following the passage of the North American Free Trade Agreement. While enjoying the free trade status of Mexico, these plants also enjoy the lack of environmental regulations, at a huge savings in operating costs. Environmental diplomacy on the part of the US is likely to engender environmental protection in countries that host the competitors of American manufacturers, leveling the ground for US companies. Also, environmental diplomacy can result in international agreements that set rules across national borders. Thus any economic burden is carried by all participants, which in most cases makes US companies more competitive. The Kyoto meeting on climate change proved this case; as the US argued for the inclusion of developing nations in the emissions reductions requirements. They recognized the opportunity to realize economic gain by persuading these bastions of cheap manufacturing to comply with restrictions US manufacturers are accustomed to. How much easier would their plight have been if in-roads had already been established through environmental diplomacy? While the US was unsuccessful on that initiative, the proactive aspect of environmental diplomacy increases the US chances for success in future attempts. As foreign nations are influenced by American environmental initiatives they would be more likely to consider joining international environmental protection treaties. Through exposure to US environmental policies, these countries will perceive that the US has maintained a healthy economy while simultaneously protecting the environment. Although these nations may point to the US's past as an excuse for their current natural resource exploitation, they may see the US present as their future

environmental protection. Pointing their compasses in that direction will eventually result in the aforementioned economic gains.

The second aspect of economic benefits is the increased market for US environmental expertise and technology. As a nation that has practiced environmental compliance for thirty years, the US is ripe with mature consulting, construction and operations and maintenance firms. These businesses possess the tools a large majority of the world desperately needs to improve their environmental outlook. However, there is no market for foreign environmental services until these nations pass legislation requiring them. Through environmental diplomacy the US can promote environmental protection based on American laws. As a result, American businesses would be in the best position to provide services to the nations attempting to comply with those laws. The laws will be the very ones the American businesses have experience with. Malaysia is one nation that has based their environmental legislation on US statutes and copied EPA regulations almost verbatim.

The economic and environmental benefits that result from environmental diplomacy are exemplified by the US Asian Environmental Partnership (US-AEP). Established in 1992 by the US Agency for International Development (USAID) and significantly funded by the Department of Commerce, US-AEP attempts to provide guidance as developing nations struggle to balance economic progress and environmental protection. There is no more important struggle regarding the health of the global environment. US-AEP currently has offices in Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Sri Lanka, Taiwan and Thailand, representing the frontline of the developing world. US-AEP influences the emergence of these economies

through “(a) the redefinition of national economic and industrial goals and environmental indicators to address industrial environmental performance, (b) the promotion of corporate transparency and environmental accountability, (c) innovation in the areas of environmental regulation and market incentives, (d) broadening and deepening of the pro-environmental pressures emerging in the marketplace and (e) transfer of information and clean technologies from country to country.” (Bando, Amit, *United States-Asia Environmental Partnership, Five-Year Review*, 1997) In practice, US-AEP identifies areas where the US can provide assistance to the host country in dealing with environmental issues, and then facilitates the transfer of that assistance. This includes such ventures as government to government assistance, as performed by the USEPA in providing technical assistance on haze issues in Malaysia in July 1998. This also includes the promotion by US-AEP of clean technology and environmental consulting offered by US companies to Asian government officials and private sector managers. As part of this goal, US-AEP operates an Environmental Exchange Program in which workshops are presented bringing together US companies and the technical managers from major Asian industries. It is estimated that US-AEP generates \$3.5 dollars in US revenue for every dollar they spend. (Young, Gordon, Director, US-AEP-Malaysia, personal conversation, 1998) While the economic potential represented by US-AEP is significant, perhaps the most important aspect of this program is the effect it has on the environment of Asia and potentially the global environment. As stated by the Five Year Review, “the world’s environmental future will be determined in significant part by what happens in the rapidly modernizing countries ...” (Bando, A., 1997) The proactive measures of US-AEP represent the US’s best chance to push that future in a favorable

direction. Consequently, the principles championed by US-AEP should be expanded to other parts of the globe.

Through the practice of environmental diplomacy, environmental issues hold the potential to contribute positively to regional security. International agreements and regional efforts, such as that of ASEAN, have demonstrated the potential positive effects. In addition, the United States can gain environmentally, economically and in regard to national security through environmental diplomacy initiatives. The various DOD initiatives and the US-Asian Environmental Partnership demonstrate this. The US would be wise to expand this successful program to other global regions.

Section III: Environmental Security, The Middle East Region

“...[T]he most pressing environmental problem in the Middle East concerns the ownership, management, and use of scarce water resources, and the linkages of water issues to agricultural policies and political decisions.”

Winnefeld and Morris, p. 96, Where Environmental Concerns and Security Strategies Meet: Green Conflict in Asia and the Middle East

“The Middle East is not the only place where water crises and disputes exist, but it is the region in which the potential for conflict over water is at its most extreme.”

Abi-Aad and Grenon, p. 137, Instability and Conflict in the Middle East

“Perhaps the best example of a region where fresh water supplies have had clear strategic implications is in the Middle East...”

Gleick, p. 6, Water and Conflict

Many recent “pure” politico-military analyses of events in Southwest Asia omit a very important factor influencing the stability of the region—the availability of potable water—despite the fact that “Southwest Asia” could easily serve in common vernacular as a synonym for “hyperarid.” The governments and peoples of the region, however, are extremely sensitive to the demand for fresh water, and we can expect that any environmental issues surrounding the availability of water for agricultural, industrial and domestic use will impact security concerns in the region. In this section of our project, I will briefly identify some of the most pressing environmental issues that Middle Eastern governments face, making the case that water-related concerns are by far the most prominent vis-à-vis security and stability. I will examine three “hot spots” where water issues are obviously impacting security issues—first, the Nile River valley (including Egypt and Sudan); second, Turkey’s Grand Anatolia Project (also encompassing Syria and Iraq); and finally, Israeli/Arab/Palestinian issues. Finally, we’ll recapitulate the

importance of water related issues to regional security concerns and examine how these particular cases highlight our need to reformulate outdated notions of “security,” including those that would allow analysts to omit water-related concerns in regions of the world that are in some cases quite literally dry as a bone.

“DIRTY, DRY AND HOT AS HELL”

“...[T]here exists an important and insufficiently appreciated environmental dimension to the overall problem of the Middle East...at its core lies the issue of water, the lifeblood of the region.”

Hillel, p. 19, Rivers of Eden

I first visited the Middle East in July of 1993. When I learned I would be posted to the Joint Task Force Southwest Asia housed in the United States Military Training Mission in Riyadh, Saudi Arabia, I immediately contacted the person whom I would be replacing. When I asked the good Major to describe what the area was like, he promptly responded that it was “dirty, dry and hot as hell!” When living and working in a typical Southwest Asian nation such as Saudi Arabia, environmental concerns are foremost in the individual’s mind, obviously. Those concerns can roughly be broken down into issues revolving around the availability of clean air (“dirty”), clean water (“dry”), and productive habitable land (“hot...”). Generally, however, land issues are part and parcel of water issues—land isn’t productive or habitable because it doesn’t receive enough yearly rainfall to be either productive or habitable. Land that does receive enough yearly rainfall, can be irrigated, or is otherwise close to another source of fresh water (aquifer via well, desalination plant, etc.) is generally habitable. While clean air is important, air

related environmental issues, empirically speaking, simply haven't impacted relationships between nation-states in the region in the same way that water related issues have. In the short and medium timeframes, water related environmental issues far overshadow other environmental issues. Even in the long run, clean water will continue to be a far more important resource than clean air, and habitable land will be habitable insofar as it is near a source of useable water.

To demonstrate the integral nature of water and security in the region, we'll examine three prototypical case studies wherein control-of-water issues were either the direct or proximate cause of instability in the Middle East.

OLD AS THE HILLS?

Before examining Turkey, Egypt and Israel, however, I'll briefly discuss some "case studies" that aren't so "contemporary"—these will provide evidence for the contention that the importance of water in the region isn't merely a historical fluke. Rather, these issues are extremely old, dating back in the thousands of years.

For example, in Genesis 26, there is a reference to a dispute involving Isaac's wells: "Now all the wells which his father's servants had digged in the days of Abraham...the Philistines had filled them with earth...So Isaac departed there and encamped in the valley of Gerar...And Isaac's servants digged in the valley and found living water. But the herdsmen of Gerar quarreled with them, saying 'the water is ours!' So Isaac called the well *Esek* [contest]...And he digged another well, but they contested over that one also. So he called it *Sitnah* [hatred]. And he moved, and digged yet another and they

contested not. So he named it *Rehoboth* [spaciousness, implying generosity]." (Hillel, p. 25) This may very well be the first reference to what is essentially a water war—hostilities engendered by concerns about access to fresh water. Of course, ancient peoples did not have access to nuclear weapons (we can't say the same about at least one of the nation-states involved in the case studies we'll examine), and there is some very real sense in which the stakes are much higher today. With most of the world dependent upon hydrocarbon exports from Southwest Asia for their economic vitality, a water-war in the region would have far more serious implications than it did in epochs past.

CASE STUDY ONE: THE NILE RIVER VALLEY

The name "Nile" may be a derivative of the Semitic root "nahal," meaning valley or stream. (p. 113, Hillel), and with a total length of approximately 6,650 kilometers, the Nile is the longest "stream" in the world. Its catchment includes nine African states: Tanzania, Burundi, Rwanda, Zaire, Uganda, Kenya, Sudan, Ethiopia and Egypt. Prior to the construction of the Aswan High Dam (completed in Egypt in 1970), the river would flood the Nile delta annually; now, however, these floods (ones that would deposit in Egypt fertile soil from Ethiopia) are artificially controlled and are a thing of the past. The root of the troubles with Nile water stems from this ability to artificially control the rise and ebb of the river.

As water expert Dan Hillel notes, "The main purpose of the Aswan High Dam was to free Egypt from dependence on the whims of upstream states or even of climate, by providing the country with an assured reserve of water subject to her own control and sufficient to tide her over periods of drought. In [former Egyptian President] Nasser's own words: 'After completion of the High Dam Egypt will no longer be the historic hostage of the upper partners to the Nile basin.'" (p. 123) The construction of the Dam is fascinating in it's own right and provides an example of the crucial strategic importance of water in the region.

Hillel continues: "The early planning of the dam was carried out in 1952 by German engineers. The West German government then had a political interest in supporting economic development in a lading Arab state, so as to counterbalance its agreement—announced that same year—to grant reparations to Israel for part of the Jewish property confiscated by the Nazis during the Second World War. After the project was deemed

feasible, the governments of the United States, Britain and West Germany were willing jointly to finance the first stage of the construction. President Nasser, however, wishing to avoid the possibility of political pressure at a later stage, demanded that the Western powers commit themselves at the outset to financing the entire project. At the same time, to demonstrate his independence, he entered into an arms purchasing agreement with Communist Czechoslovakia.” (p. 125)

As Hillel notes, this move did not meet with the approval of the United States: “To pressure Egypt back into the Western fold, John Foster Dulles (then secretary of state under President Eisenhower) withdrew American support for the High Dam project. In defiance, Nasser then nationalized the Suez Canal, which had long been under British control. In 1956 Britain undertook, along with its partner France and with Israel (which had its own altercation with Egypt along the Gaza Strip), to attack Egypt. But because those states did so without informing the United States or obtaining its prior approval, President Eisenhower interceded and forced their withdrawal from Egypt. Rather than return to America’s fold, however, Nasser then turned to its Cold War rival. The Soviet Union was willing to help Egypt in the financing and the actual construction of the Aswan High Dam, and an agreement to that effect was signed in 1958.” (p. 125)

Still, Egypt was not out of the thick yet, as “Work could not begin immediately, however, because the Sudanese objected to certain provisions of the original plan. Specifically, they objected to the submergence of the Wadi Halfa valley within their territory, requiring the displacement of tens of thousands of the indigenous Nubian population living there. In addition, they demanded to change the anachronistic Sudano-Egyptian treat of 1929, according to which Egypt received 48 BCM/Y (billion cubic

meters per year) while Sudan was granted only 4 billion cubic meters. Now Sudan claimed that, in view of its population and needs, it should be entitled to one-third of the Nile's water." (Hillel, p. 125)

Hillel continues: "The negotiations lasted one year and culminated in a new agreement, signed in October 1959. It was based on the assumption of a mean annual inflow at Aswan of 84 billion cubic meters, of which Sudan could abstract 18.5 and Egypt's share would be 55.5 BCM/Y. The remaining 10 billion cubic meters were projected to be lost to evaporation and seepage from the Aswan reservoir. Egypt also agreed to grant Sudan financial compensation for the resettlement of the displaced population from the Sudanese lands that were to be inundated by the dam's reservoir." (p 125) The 1959 agreement between Sudan and Egypt, however, made no provision for the rights of any other riparians. The agreement merely stated that "once other upstream riparians claim a share of Nile waters, both countries will study together these claims and adopt a unified view thereon. If such studies result in the allocation of an amount of Nile water to one or another of these territories, then the value of this amount shall be deducted in equal shares from the share of the each of the two Republics." Given this aspect of the agreement, and given that even the initial two signatories to the treaty (Egypt and Sudan) have a chilly relationship, it's no surprise that Israeli Brigadier-General Zaivka Kantor remarked recently that "...if you look at what is happening along almost the entire length of the Nile today, most disputes involving Ethiopia, the Sudan and Egypt, again, center on water." (Venter, June '98, p. 126).

Egypt has also attempted to increase its water supply by persuading the Sudan to divert water from the swamps of the White Nile (the western river of the twin rivers—the

White and Blue Nile—that merge at Khartoum to form the Nile proper) by digging a canal through the Sudd (an impenetrable swamp in southern Sudan). Construction of the Jonglei diversion project began in 1978 after years of haggling between Sudan and Egypt; the project was disrupted, however, in 1984 (after only about two-thirds of the task had been completed) by violent civil war in Sudan. In southern Sudan, the SPLA (Sudanese People's Liberation Army) took up arms against the central government. Most of the south Sudanese people are Christian or animist and are of Central African descent, while the Arab-dominated and north Sudanese are Muslim. The northerners control the central government; the south Sudanese oppose the imposition of Islamic law in a region that is non-Muslim, and they consider the Jonglei project a provocative intrusion of the north into their domain "and an attempt to change their environment and deprive them of its vital resources." (Hillel, p. 132) So, perversely, even attempts by national actors to resolve or dispel some water-related tensions can lead to internecine conflict as a push in one area translates into a shove in another.

More importantly, the upstream riparians, primarily Ethiopia, are still more-or-less being ignored by Sudan and Egypt. As Hillel notes, "so far, preserving the status quo on the Blue Nile while ignoring Ethiopia's interests has seemed to serve Egypt's interests." (p. 141). Still, it will not be possible to continue disregarding the interests of the upper riparians indefinitely. Relations between the three primary actors are already strained. Egypt and Sudan are in a "cold war" revolving around disagreements about Egyptian-Sudanese borders, Sudan has its own internal troubles with the SPLA rebellion, and Ethiopia is in a continual state of turmoil. Hopes for cooperation in the region are high;

however, given the rich nature of the political situation, there is also a good chance that Nile River valley issues could lead to conflict rather than cooperation.

As Naji Abi-Aad and Michael Grenon note, there have been rumblings from Egypt regarding the Nile Valley situation since the 70's. In 1979, then Egyptian President Sadat stated 'the only matter that could take Egypt to war again is water'—this threat was not directed at Israel, but at the upstream Nile countries, primarily Sudan and Ethiopia. More recently, then-Egyptian Foreign Minister Boutros Ghali said that "The next war in our region will be over the waters of the Nile, not politics." (Sunday Nation, Jan 10, 1988) The Egyptian High Military Command has prepared contingency plans for armed intervention in each of the countries around the Nile basin in case of a direct threat to the flow of the river (Abi-Aad and Grenon, p. 144). Ethiopia, however, will not be in any position to directly use Nile water in a manner that would threaten Egypt until the internal situation allows for genuine development to occur. In the end, analysts are split as to whether the pressures between these three riparian states will lead to cooperation (for this perspective, see Hillel) or conflict (for this perspective, see Abi-Aad et al and Beschoner).

The Nile River Valley situation highlights features that will be typical of all the cases we will examine—water resources are shared (either a blessing or a curse depending on your assumptions), and the criticality of water as a resource affects and is, in turn, affected by other important variables (civil war, economic expansion, etc.).

CASE STUDY TWO
TURKEY AND THE GRAND ANATOLIA PROJECT
(GUNEYDOGU ANADOLU PROJESI)

“Syria and Iraq, together, are locked in bitter acrimony with Turkey over the flow of the Euphrates. As populations increase at a frightening pace, the equation becomes even more intractable, especially since most of those involved are, if not wary of one another, then downright suspicious...”

Venter, p. 127, “The Oldest Threat: Water in the Middle East”)

The Euphrates and Tigris rivers flow from the mountains of southern Turkey through Syria and into Iraq before finally spilling into the Persian Gulf. Along the way, all three of these nations depend on water from the rivers to irrigate, to drink, for industry and for hydroelectric power. Any attempts by one nation to divert water from the Euphrates are viewed, of course, with great concern by the others. In 1974, for example, Iraq threatened to bomb the al-Thawra dam in Syria and massed troops along the border, alleging that the flow of water to Iraq had been reduced by the dam. Dam building efforts by both Syria and Iraq (Iraq’s “third river” project in the south has been that country’s most ambitious venture), however, pale in comparison to the scope and impact of Turkey’s Grand Anatolia Project (the GAP, or Guneydogu Anadolusi Projesi). (see p. 8, Gleick) Work thus far in the GAP project has taken place primarily along the Euphrates. Owing to the tremendous cost of the project (well in excess of \$20 billion, most of which must be borne by Turkey alone), the Tigris headwaters will be developed at a later stage, if at all (Hillel, p. 105).

The purpose of the project is to breathe new life into the economically depressed region of Southeastern Turkey. The Turks ultimate goal is to transform a semiarid plateau into a breadbasket via massive network of irrigation canals. Another aim of the

project is to weaken the hold that the Kurdish separatist movement has on the people of the region by boosting the local economy and attracting more traditional ethnic Turks into the region. As expected, this angers the Kurds (members of both the Kurdish Democratic Party and the Patriotic Union of Kurdistan, the two major Kurdish political groups), not only because they consider this colonization of the Kurdish homeland, but also because the GAP is forcing the relocation of upwards of 250,000 people whose land will be covered by lakes formed behind the dams. (Hillel, p. 104-5)

To give some idea of the scope of the project, the GAP plan will eventually result in the construction of 66 hydroelectric power stations, 68 irrigation projects, and 80 dams. Of the dams, the largest are the Keban (completed in 1974), the Karakaya (completed in 1988) and the Ataturk (which began generating power in 1992). (Hillel, p. 105). Ataturk Dam will be one of the largest dams in the world, and its filling has already caused international problems.

The dam is fed by the Euphrates River, and in early 1990, Turkey blocked the flow of the river to begin forming a reservoir behind the dam. Syria and Iraq protested, as they suffered serious water deprivation during the period of curtailed flow: "Syria not only experienced crop losses but also was forced to reduce its production of electricity, and—because many of the pumps drawing water from wells along the coastal area of Syria are electrical—there were even shortages of drinking water. Iraq also suffered crop losses." (Hillel, p. 106). As Grenon notes, though, both the governments of Syria and Iraq had been warned in advance and flow had been increased the month prior to the cutoff. (p.145) No doubt these governments sense the symbolic importance of the Turkish move ("The Euphrates is Turkey's to control...") as well as its literal physical significance,

though. The most pessimistic forecasts in Iraq and Syria are that the GAP project could cost Syria 40 percent and Iraq 90 percent of the flow water of the Euphrates. Grenon and Abi-aad note that, of course, that much of the water will in fact get back into the river, but after irrigating Turkey's fields it will be saltier when extracted by the downstream riparians.

The "water weapon" is already being used by Turkey to persuade Syria to decrease its support for Kurdish insurgents inside Turkey. In 1991, to assuage worries about Turkish control of the rivers, Turkey unilaterally announced that it would release from the Euphrates at least 500 cubic meters per second of water across the border, but "...that future supplies could be increased in return for further Syrian help against Kurdish separatists." The Turkish position is that they own all of the water in the Tigris and Euphrates river, as former Prime Minister Demirel noted in 1990:

...neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. This is a matter of sovereignty. We have a right to do anything we like. The water resources are Turkey's, the oil resources are theirs. We don't say we share their oil resources, and they cannot say they share our water resources. (p. 145, Abi-Aad)

As tensions between the central government and Kurdish rebels in the southeast continue to mount, and as the GAP project advances, the likelihood that water resource concerns will serve as a flashpoint for conflict increases. While travelling in Turkey this year, I spoke with several Kurds who viewed the GAP project with distrust and had every intention of continuing to seek Syrian support for rebellion against the Turkish central government (for more on the Kurdish situation in Turkey, see Gunter's The Kurds and the Future of Turkey). Winnefeld notes that

Although Syria has just as consistently issued official denials of both its involvement and its control over terrorist groups, there is strong regional feeling that such support is a just payback to Turkey for what Damascus considers its high-handed use of Euphrates waters. (p. 26)

Other RAND researchers conducted an analysis in 1993 indicating that disagreement over the Tigris-Euphrates river between Turkey, Syria and Iraq would likely be a source of potential conflict (see "Global '92 Analysis of Prospective Conflicts in the Tigris-Euphrates Watershed", RAND).

Fortunately, by virtue of being a member of NATO, and by virtue of their longstanding ties with the United States, Turkey has a stake in ensuring that conflict does not erupt. Regardless, the relationship between the GAP project and regional instability is an interesting one that should be watched closely.

The tensions between Turkey, Syria and Iraq are only secondarily ethnic ones...in some sense, water serves as a focal point, and any ethnic issues that emerge in relation to this particular issue are ones that probably would not have arisen explicitly otherwise. Such is not the case, however, with our final case study, where ethnic tensions elevate the importance of the water scarcity issue while simultaneously serving to frame it.

CASE STUDY THREE: ISRAEL, AND THE ARABS & PALESTINIANS

"Ilmai ni'ima wa naqma"—"Water is a blessing and a curse." (Arab proverb)

Tensions over water come most clearly into focus with regard to Israel and its neighbors, in large part because Israel draws the majority of its water from sources in

land occupied since the 1967 Arab-Israeli War (Winnefeld, p. 28). To highlight the importance of water to current tensions in the region, the success of current peace negotiations "rests almost certainly on successful negotiation of water issues." (Winnefeld, p. 28).

There have been numerous times in the past when water scarcity issues either increased tensions between Israel, Jordan and Syria and the Palestinian population, or led to "hot" conflict. Some examples (derived from Winnefeld and Morris, p. 29-31):

--*Spring, 1951*: Shooting in the demilitarized zone with Syria resulted in Israeli expulsion of Arab villagers; the underlying cause was Israeli draining of the Huleh swamps as part of its National Water Carrier system, which aimed at diverting Jordan River water to the coastal plains and Negev desert.

--*September, 1953*: Shooting in the DMZ; the underlying cause was sovereignty over the area, and immediate cause was water diversion of the Jordan River by Israel.

--*November, 1964*: Arab and Israeli patrols exchange fire; the Tell el-Qadi, source of the Dan River, was bombed by Arabs. Underlying cause was sovereignty over the Dan River.

--*January, 1965*: The Palestinian Liberation Army's (a PLO organ) Fatah hit a pump station in disputed territory; the actions were driven by concerns about sovereignty over water.

--*Spring, 1965*: Israeli and Syrian patrols fired at each other on the Israeli-Syrian border. The immediate issue was road building by Syria in the Golan Heights, but the underlying issue was Arab water diversion.

--*July, 1966*: The Israeli air force bombed Syrian construction vehicles and conducted an air battle at Banias. The basic issue at stake dealt with Arab water diversion of the northern Jordan River's tributaries.

--*August, 1966*: An exchange of fire between Israel and Syria on Lake Tiberias was sparked by Syrian patrolling and fishing of the lake. At issue was land use in the demilitarized zone.

--*April, 1967*: A firefight in the DMZ was caused by continued Arab attempts at water diversion (this served as both the proximate and underlying cause).

According to Naff and Matson (p. 45), the firefight was followed by Israeli bombing of Golan and the sighting of Israeli planes over Damascus.

Following the June 1967 Arab-Israeli War, Israeli victory resulted in an almost 50 percent increase in existing Israeli fresh-water reserves and aquifers, and also gave them riparian rights over upstream tributaries to the Jordan, as Lonergan points out (p. 78).

The emergence of the Palestinian Liberation Organization after the '67 War complicated the water scene even further. All told, the West Bank and the Golan Heights contain about two-thirds of the water that Israel uses (Winnefeld, p. 32), so any eventual settlement between Israel, Syria, the Palestinians and Jordan will have to include guarantees of adequate water for all parties involved in the treaty.

One Israeli fear is that deep pumping of aquifers on the West Bank would lead to water deprivation for the Jewish state; there is also concern that unresolved hostilities could lead to sabotage or diversion of Israeli water supplies. Israel has taken some steps to ensure that deep pumping does not occur: Israel maintains "water supervision" over areas from which the Israeli Defense Force withdraws, "largely to ensure that Palestinians do not tap groundwater without approval." (Venter, p. 133) According to Winneman, the explosive situation in the Gaza strip itself derives at least in part from severe water shortage (p. 34). And according to Lonergan and Brooks, the water crisis in Israel will continue for the foreseeable future (p. 70).

In other words, the relationship between Israel and its Arab neighbors constitutes not so much as "a" case study of the impact that water shortages can have on tensions, but an entire *series* of case studies with open-ended conclusions. How these tensions play out will depend on the success that all parties to any peace agreement have in managing their

water use and developing their water resources. In any case, the nations of the region have an idea of the importance of water related issues. One of Prime Minister Rabin's last statements prior to his assassination dealt with the question of Golan and the possibility of Syrian domination of the heights above the Sea of Galilee—as Venter notes, “the prime minister declared that he couldn't see [this] happening if agreements about water usage were not coupled to iron-clad guarantees. Preferably they should be underwritten by a major power...’The uninterrupted supply of water to the nation is more important than peace.” This extemporaneous statement is a profound one, as it “underscores Israel's sine qua non with regard to any future peace settlement with Syria or, for that matter, anyone else in the region.” (Venter, p. 126)

THE ENVIRONMENT AND SECURITY

Thomas Naff summarizes his views about the importance of water thusly:

“In sum, the strategic reality of water is that under circumstances of scarcity, it becomes a highly symbolic, contagious, aggregated, intense, salient, complicated, zero-sum, power- and prestige-packed issue, highly prone to conflict and extremely difficult to resolve.”

(p. 26. Proceedings, *Environmental Dimensions of Security*). The upshot of this position is that, in the appropriate circumstances, water related environmental issues become not just environmental issues but national security issues. This is hardly a revelation—see, for example, Myers' 1993 treatise on the environmental basis of political stability.

Nonetheless, as Schantz and others have urged, we need to explicitly recognize the relationship between environmental concerns and security concerns. In the case of water, we can deal with a water crisis only if we have the wherewithal to recognize the

environmental dimension of the security issue and act to correct it. There are better forms of irrigation, negotiations that are explicitly environmental in character can take place, water use can be cut back, etc., but we never arrive at these answers if we don't properly formulate the problem. Thomas Homer-Dixon and others have developed models that explicitly incorporate environmental concerns into a national security model (see, for example, the Proceeding of the 1992 AAAS Annual Meeting Symposium or the Winnefeld study from RAND). All three of the case studies examined in this paper provide evidence for the need to recognize the explicitly environmental character of situations that have the potential to impact the security concerns of the United States. As Ornas and Krokfors note, "Global issues concerning environmental and natural resource sustainability have become so important that it no longer makes sense to discuss international economic, political and security relations without devoting a central place to them." (p. 9)

In this section of our project, I briefly identified some of the most pressing environmental issues that Middle Eastern governments face, making the case that water-related concerns are by far the most prominent vis-à-vis security and stability. I examined three "hot spots" where water issues are impacting security issues—first, the Nile River valley; second, Turkey's Grand Anatolia Project; and finally, Israeli/Arab/Palestinian issues. Last, we recapitulated the importance of water related issues to regional security concerns and examine how these particular cases highlight our need to reformulate outdated notions of "security," including those that would allow analysts to omit water-related concerns in regions of the world that are hyperarid.

Thomas Naff summarizes the situation in Southwest Asia succinctly on pp. 1 –3 of Water in the Middle East: Conflict or Cooperation when he says:

The severity of Middle Eastern water problems will, unavoidably, increase significantly during the remainder of this century. In an already over-heated atmosphere of political hostility, insufficient water to satisfy burgeoning human, developmental, and security needs among all nations of the Middle East heightens the ambient tensions. As each riparian perceives its legitimate “hydraulic imperatives” threatened or frustrated by another actor, water-generated conflicts—which could easily engulf the entire region—could well be the inevitable outcome.

One hope we have of recognizing and recovering from a seemingly unrecoverable water crisis is to reformulated our conception of national security so that we can bring all of our resources to bear on lessening water-based tensions in the Middle East.

Conclusion

The national security policy of the United States is developed from the perceived and actual sources of conflict which have a direct influence, according to the 1996 National Security Strategy, "on our people, our territory, and our way of life." To protect our national security and foreign interests we must be proactive and partner with other nations to minimize and correct environmental impacts, especially in developing nations.

We define environmental security as any situation arising from environmental degradation which threatens to have a negative impact on the economic or political well-being of the United States. Environmental issues are not contained by national boundaries; we believe that the two regions which are most informative of the effects of environmental issues on security are the Southeast Asia and Middle East Regions.

Through the practice of environmental diplomacy, environmental issues hold the potential to contribute positively to regional security in the Far East. International agreements and regional efforts, such as that of ASEAN, have demonstrated the potential positive effects. In addition, the United States can gain environmentally, economically and in regard to national security through environmental diplomacy initiatives. The various DOD initiatives and the US-Asian Environmental Partnership demonstrate this. The US would be wise to expand this successful program to other global regions.

There are many pressing environmental issues that Middle Eastern governments face, but water-related concerns are by far the most prominent vis-à-vis security and stability. There are three "hot spots" where water issues are impacting security issues—first, the Nile River valley; second, Turkey's Grand Anatolia Project; and finally, Israeli/Arab/Palestinian issues. The importance of water related issues to regional

security concerns can not be underrated and these particular cases highlight our need to reformulate outdated notions of "security," including those that would allow analysts to omit water-related concerns in regions of the world that are hyperarid.

These two regions of the world appear to us to be the most likely to influence national security policy as the result of environmental concerns. Mitigation of the threats can be accomplished by cooperation and action by the US Department of Defense, Environmental Protection Agency, the Department of Energy and the State Department.

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Environmental Security in Southwest Asia

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Environmental Security: SWA

- Identify the most pressing environmental issues in the Middle East (water based)
- Three case studies:
 - Nile River Valley (Egypt, Sudan, Ethiopia)
 - The GAP Project (Turkey, Syria, Iraq)
 - Arab, Palestinian/Israeli Issues
- Impact on analysis of national security

Why Water?

- Basic human need
- Long term: most pressing environmental issue
 - Other issues pale by comparison...
 - Productive, habitable land = water an *a priori* necessity
- “Staying Power” (Genesis: Isaac and Gerar)
 - First documented “water war”

Case Study I: Nile River Valley

- Egypt: construction of Aswan Dam
 - Nasser: free Egypt from whims of upstream riparians
- Early planning: 1952...US, Britain, West Germany to finance
 - Demanded total Western commitment, entered arms purchasing agreement with Czechoslovakia

Nile River Valley

- Nasser nationalizes Suez Canal
 - Eisenhower intercedes to prevent British/French/Israeli intervention
- Nasser turns to Soviet Union--1958
- Sparked by water concerns, became matter of national prestige/image**
- Sudanese objected to final plan

Nile River Valley

- Submergence of Wadi Halfa--tens of thousands to be moved
- Demand change to '29 treaty (Egypt: 48 BCM/Y, Sudan: 4 BCM/Y)**
- '59: Egypt: 55.5 BCM, Sudan: 18.5 BCM
- No provision for upstream riparians**
- Attempted solution: Jonglei Diversion Project in Sudan...interrupted by SPLA**

Nile River Valley

- Lack of coordination: exacerbates water-related tensions
- Sadat: “...the only matter that could take Egypt to war again is water...”
- Bhoutrus-Ghali: “...the next war in the region will be over the waters of the Nile, not politics...”
- Egyptian HMC--plans for military intervention

Nile: Lessons

- Analysts: jury still out (pressures force cooperation or conflict?)
- Symbolic repercussions
- Often governed by out of date agreements
- Current negotiations need to include all affected actors
- “Solutions” can snowball

Turkey and the GAP

- Euphrates/Tigris headwaters in Turkey
- Crucial to Iraq, Syria, and Turkey
 - ‘74 Al Thawra incident
- Dam building by all nations, but...pales in comparison to GAP
- \$20 billion project, develop Euphrates first
- Breathe new life into SE Turkey

The GAP

- 66 power stations, 68 irrigation projects, 80 dams (massive Ataturk Dam in '92)
- Already source of tensions: '90--Syria experiences crop losses, reduced electricity production; Iraq--crop losses
- Pessimistic: cost Syria 40%, Iraq 90%
- Kurds: added fuel to rebellion
- Turkey uses "water weapon" to persuade Syria to decrease support for PKK, KDP...

Turkey and the GAP

- RAND analysis: high potential for conflict
- Similar lessons as first case study:
 - Thorny issues
 - Empirically does cause hot conflicts
 - Can surface otherwise submerged ethnic tensions
 - Proximate cause/primary cause?...difficult to discern

Israel, the Arabs, and the PLO

- Israel draws majority of water from sources in land occupied since '67 war
- Long history of water related tensions:
 - Spring, '51: shooting in DMZ w/Syria (draining of swamps to divert Jordan river water to Negev)
 - Sept., '53: more shootings in the DMZ
 - Nov., '64: Arab and Israeli patrols exchange fire (Dan river sovereignty)

Israel, the Arabs, and the PLO

- And so it goes...
 - July, '66: IAF bombs Syrian constructed vehicles, engages SAF at Baniyas (Jordan river diversion)
 - Aug., '66: Israel/Syria exchange fire (Lake Tiberias)
 - April, '67: firefight in DMZ (caused by Arab attempts at water diversion)
- Israeli victory in '67 war: expanded supplies by 50%

Israel, the Arabs, and the PLO

- Emergence of PLO complicates matters
- West Bank, Golan Heights: almost 2/3 of Israeli water issues from here
- “Water Supervision” rights
- Series of open-ended case studies
- Problematic: implicit/explicit?
 - Rabin: “The uninterrupted supply of water to the nation is more important than peace...”

Whence water?

- Naff: “...highly symbolic, contagious, aggregated, intense, salient, complicated, zero-sum, power and prestige packed issue, highly prone to conflict and extremely difficult to resolve...”
- Obviously a national security issue
- Treat it as such...analytically and in policy formulation/implementation

Recommendations

- Raise awareness of implicit water concerns/issues
- Analysts: adopt methodologies that explicitly factor in environmental issues (Thomas Homer-Dixon)
- Consider shifting priorities: Israel, Egypt-- #1 and #2 foreign aid recipients...H2O?
- Context sensitivity necessary
- Multifaceted effort (military involvement?)

Conclusion

- “...as each riparian perceives its legitimate ‘hydraulic imperatives’ threatened or frustrated... water-generated conflicts-- which could easily engulf the entire region-- could well be the inevitable outcome” (Naff)
- “Opportunity for cooperation” (Hillel)
- Stay tuned...